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S/139/60/000/006/013/032
E032/E414

Symmetry Properties of the Schrodinger-Pauli Equation for an Electron in a Crystal

where Ψ is the two-component wave function, σ_μ are the Pauli matrices, $\epsilon_{\mu\nu\lambda}$ is the Levi-Civita density and $V(r)$ is a function which is invariant with respect to all the operations of the space group K . It is shown that the time reversal operator for this equation does not in general commute with its symmetry operators. A generalization of the Wigner theorem (Ref.3) is obtained which can be used as a criterion for the existence of an additional degeneracy associated with the isotropy of time. The connection between this criterion and the criterion obtained by Herring (Ref.4) is established. The paper is entirely mathematical. There are 5 non-Soviet references.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut
pri Tomskom gosuniversitete imeni V.V.Kuybysheva
(Siberian Physicotechnical Institute at
Tomsk State University imeni V.V.Kuybyshev)

SUBMITTED: October 9, 1959
Card 2/2

34189

S/139/61/000/006/007/023

E039/E320

24,7100 (1153,1144)

AUTHOR: Chaldyshev, V.A.

TITLE: On the question of investigating the energy spectrum of electrons in crystals. I.

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no. 6, 1961, 48 - 51

TEXT: It is well known that it is possible to determine the nature of the dependence of the electron energy from the wave vector $\underline{K}$ with the aid of the perturbation theory. In this work is proposed a method of determining the energy spectrum for electrons in crystals from the wave vector without using the perturbation theory. This means that an approximate formula for the function $\varepsilon(\underline{K})$ is obtained for all the Brillouin zones. The energy as a function of the wave vector $\underline{K}$ can be obtained from a solution of the equations for the periodic part of the wave function:

$$H_{\underline{k}} u = \varepsilon(\underline{k}) u$$

(1) .

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Eq. (1) is invariant owing to its relation with an operator of group $G(\underline{K})$. After some manipulation and transformation, and using an invariant sub-space $L_n(\underline{K})$, Eq. (1) becomes equivalent in form to:

$$a_{\mu\nu}(\underline{K})C_\nu = \varepsilon(\underline{K})C_\mu \quad (3) .$$

Here, μ and ν have values from 1 to s , where s is the sub-space dimension. By the action of operator $A(g)$ of group $G(\underline{K}_0)$, the following relations are obtained:

$$\begin{aligned} \varepsilon(\underline{K}) &= \varepsilon(A^{-1}(g)\underline{K}) \\ a_{\mu\nu}(\underline{K}) &= A_{\mu\mu'}(g)a_{\mu'\nu'}(A^{-1}(g)\underline{K})A_{\nu'\nu}^{-1}(g) \end{aligned} \quad (7)$$

from which is derived a value for the matrix $a_{\mu\nu}(\underline{K})$:

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$$a_{\mu\nu}(\underline{K}) = P_{\nu\nu}^{-1} a_{\nu'\mu'} (T_{\underline{K}}^{-1}) P_{\mu'\mu} \quad (11) .$$

The action of the operator $T_{\underline{K}_0} = BT$ on vector $\underline{K}$ gives the relation:

$$T_{\underline{K}_0} \underline{K} = -B\underline{K} \quad (12) .$$

It can be shown that the matrix $P_{\mu\nu}$ coincides with the corresponding matrix for the sub-space L_n^0 (the method of calculating this matrix is given in an appendix). If the series for $a_{\mu\nu}(\underline{K})$ can be effectively solved, the conditions (7) and (11) allow the reduction of all analysis parameters to a small number of independent parameters. It is possible in such a manner to examine the dispersion law around any point $\underline{K}_0$ of the Brillouin zones. Taking the analysis as far as the second term:
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$$a_{\mu\nu}(\underline{K}) = a_{\mu\nu}^o + a_{\mu\nu}^i(K_i - K_{oi}) + \frac{1}{2} a_{\mu\nu}^{ij}(K_i - K_{oi})(K_j - K_{oj}) \quad (13)$$

we obtain the same results for the dispersion law as previously obtained by the use of the theory of second-order perturbations. There is 1 Soviet-bloc reference.

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SUBMITTED: January 10, 1961

Card 4/4

37718

S/139/62/000/002/014/028
E073/E435

246111
AUTHOR:

Chaldyshev, V.A.

TITLE:

The possible structure of the energy spectrum of
chalcopyrite-type crystals

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
no.2, 1962, 98-103

TEXT: The possible type of dependence of the energy on the wave vector in the neighbourhood of various points of the Brillouin zone is investigated by means of the method, proposed in an earlier paper of the author (Izv. VUZ, Fizika, no.6, 1961, 48-51), for investigating the spectra of ternary compounds with a chalcopyrite-type lattice (spatial group D_{2d}^{12}). This method is based on determining the energy spectrum for electrons and crystals from the wave vector, without using the perturbation theory, by obtaining an approximate formula for the function $\epsilon(k)$ for the entire Brillouin zone. Relations governing dispersion for typical points of the Brillouin zone are given in the paper. Irreducible matrices are given in the appendix for the individual points.

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The possible structure ...

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(Siberian Physicotechnical Institute of Tomsk
State University imeni V.V.Kuybyshev)

SUBMITTED: January 10, 1961

Card 2/2

24.6111

37719

S/139/62/000/002/015/028

E073/E435

AUTHORS: Chaldyshev, V.A., Kudryavtseva, N.V.

TITLE: On the question of investigating the energy spectrum of electrons in crystals. II

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.2, 1962, 104-107

TEXT: The authors propose a new method for determining the relationships between the parameters of the dispersion law, dependent on the spatial symmetry of the crystal. As shown in a previous paper (Izv. VUZ, Fizika, no.6, 1961, 48) the investigation of the character of the energy spectrum of electrons in crystals around any point $\underline{k}_0$ of the Brillouin zone reduces to the analysis of the equation

$$\det [a_{\mu\nu}(\underline{k}) - \delta_{\mu\nu} \epsilon(\underline{k})] = 0 \quad (1)$$

The functions $a_{\mu\nu}(\underline{k})$ must satisfy

$$a_{\mu\nu}(\underline{k}) = A_{\mu\mu'}(g) a_{\mu'\nu'}(A^{-1}(g)\underline{k}) A_{\nu'\nu}^{-1}(g) \quad (2)$$

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which is a result of the spatial symmetry of the crystal,
and

$$a_{\mu\nu}(\underline{k}) = P_{\nu\nu}^{-1} a_{\nu\mu}(T_k^{-1} \underline{k}) P_{\mu\mu} \quad (3)$$

The use of Eq.(2) and (3) assumes that $A_{\mu\nu}(g)$ and $P_{\nu\nu}$, as well as the action of the operators $A(g)$ and T_k on the wave vector are known. The problem of determining the matrices $A_{\mu\nu}(g)$ of the irreducible representations of the group G_e for different points $\underline{k}_0$ of the Brillouin zone reduces to the calculation of irreducible weighted representations for weights of certain types, corresponding to a certain point group R .

ASSOCIATION: Sibirskiy fiziko-tehnicheskii institut pri Tomskom gosuniversitete imeni V.V.Kuybysheva (Siberian Physicotechnical Institute of Tomsk State University imeni V.V.Kuybyshev)

SUBMITTED: April 20, 1961

Card 2/2

24.6.110

S/139/62/000/003/004/021
E039/E420

AUTHORS: Chaldyshev, V.A., Pavlov, S.D.

TITLE: Structure of the electron energy spectrum in crystals with a NaCl lattice

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.3, 1962, 35-37

TEXT: The possible dispersion laws near to different points in the Brillouin zones are investigated. The dependence of $E(k)$ in a quadratic approximation is studied by means of the usual method of perturbation theory of the second order, the well-known kp method. Results are given for a number of points neglecting the influence of spin-orbital interactions. One, two and three dimensional cases are considered. The change in structure is also investigated when the influence of spin-orbital interaction is taken into account. 13

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V.Kuybysheva (Siberian Physico-Technical Institute at Tomsk State University imeni V.V.Kuybyshev)

SUBMITTED: April 18, 1961
Card 1/1

S/139/62/000/003/016/021
EO39/E460

AUTHORS: Kudryavtseva, N.V., Chaldyshev, V.A.

TITLE: On the investigation of the energy spectrum of electrons in a crystal. III. Certain properties of weighted representations

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.3, 1962, 133-139

TEXT: Earlier part - Izv. VUZ. Fizika, no.2, 1962, 104. Certain properties of the weighted representations which are necessary for the investigation of the energy spectrum of electrons in a crystal lattice are established. A series of definitions and theorems are established by group theory methods. The concept of a weighted representation is introduced. R is a symmetry point group with elements r. If to each element r of R there corresponds a linear operator T(r) then,

$$T(r_i)T(r_j) = \psi(r_i, r_j)T(r_i r_j)$$

where $\psi(r_i, r_j)$ is a scalar function satisfying the functional equation
Card 1/2 $\psi(r_1, r_2)\psi(r_1 r_2, r_3) = \psi(r_1, r_2 r_3)\psi(r_2, r_3),$

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EO39/E460

then this correspondence is called the weighted representation of the group R and the function $\psi(r_i, r_j)$ the weight. If ψ is unity, then the system reduces to the normal representation. A series of theorems of the properties of ψ are developed covering reducible and irreducible representations. The properties of tables of the weights are discussed. /B

ASSOCIATION: Sibirskiy fiziko-tekhnicheskii institut pri Tomskom gosuniversitete imeni V.V.Kuybysheva.
(Siberian Physicotechnical Institute at Tomsk State University imeni V.V.Kuybyshev)

SUBMITTED: April 20, 1961

Card 2/2

S/139/62/000/004/008/018
E132/E435

AUTHORS: Kudryavtseva, N.V., Chaldyshev, V.A.

TITLE: On the question of the investigation of the energy spectrum of electrons in a crystal. IV

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.4, 1962, 98-106

TEXT: Theorems have already been developed (Izv.VUZ Fizika, no.2, 1962) related to weighted distributions in the 32 crystallographic point groups. Those crystal classes for which weighting only of the first order can be realized are distinguished. Tables of second order weighting are developed and shown to be largely equivalent. The elements of the group R (the crystal class) can be divided into subgroups, each separate cyclic groups, the elements of which commute among themselves. One element may belong to several cycles. These are tabulated. It has already been shown that for tables of weightings of the first order a one-dimensional weighted representation exists. One-dimensional representations no longer exist for tables of the weightings of the second order when these lead to antisymmetric weightings.

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S/139/62/000/004/008/018

On the question of the investigation .. E132/E435

The theory developed appears to be a mathematical analogy of the geometrical theory of black and white and coloured groups developed by A.V.Shubnikov and N.V.Belov by more intuitive methods. There are 5 tables.

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SUBMITTED: April 20, 1961

Card 2/2

S/181/62/004/012/018/052
B104/B102

AUTHORS: Karavayev, G. F., Kudryavtseva, N. V., and Chaldyshev, V. A.

TITLE: The structure of the electron energy spectrum in Th_3P_4 -type crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 12, 1962, 3471-3481

TEXT: The covariant representation of the symmetry properties of Th_3P_4 -type crystals according to E. Wigner (Group Theory and its Application to the Quantum Mechanics of Atomic Spectra, Academy Press, 1959) is applied to studying the effect that spatial symmetry and isotropy of Z_3Se_4 -type compounds exerts on the electron energy spectrum. For the symmetry group T_d^6 of the lattice type investigated and with type Γ_c^v of the Brillouin zone, the dispersion laws near the symmetry points of the Brillouin zone are derived in parametric form on the basis of solutions to the algebraic equation $a_{\mu\nu}(\vec{k})c_\nu = \varepsilon(\vec{k})c_\mu$. The method used was suggested by V. A.

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The structure of the electron ...

S/181/62/004/012/018/052
B104/B102

Chaldyshev (Izv. vuzov SSSR, Fizika, no. 6, 48, 1961; no. 6, 93, 1960).
The symmetry coefficients $a_{\mu\nu}$ determine the character of the dispersion
law in the neighborhood of the symmetry points. The matrices $\mathcal{H} = \| a_{\mu\nu} \|$
are calculated in quadratic approximation with respect to $\vec{k}$, using the
matrices of the irreducible representations $D(g)$ of the unitary and
antiunitary operations g . The representations of the matrices are given.
There are 1 figure and 13 tables. ✓

ASSOCIATION: Tomskiy gos. universitet im. V. V. Kuybysheva (Tomsk State
University imeni V. V. Kuybyshev)

SUBMITTED: July 6, 1962

Card 2/2

CHALDYSHEV, V. A.; PAVLOV, S. D.

Structure of the electron energy spectrum in crystals with a
NaCl type lattice. Izv. vys. uch. zav.; fis. 3:35-37 '62.
(MIRA 15:10)

1. Sibirskiy fiziko-tekhnicheskii institut pri Tomskom gosun-
darstvennom universitete imeni V. V. Kuybysheva.

(Electrons—Spectra) (Crystal lattices)

KUDRYAVTSEVA, N. V.; CHALDYSHEV, V. A.

Electron energy spectrum in crystals. Part 3. Some properties
of load representations. Izv. vys. uch. zav.; fiz. 3:133-139
'62. (MIRA 15:10)

1. Sibirskiy fiziko-tehnicheskoy institut pri Tomskom gosudarst-
vennom universitete imeni V. V. Kuybysheva.

(Crystallography, Mathematical)

KUDRYAVTSEVA, N.V.; CHALDYSHEV, V.A.

Study of the energy spectra of electrons in a crystal. Part 4.
Izv.vys.uch.zav.; fiz. no.4:98-106 '62. (MIRA 15:9)

1. Sibirskiy fiziko-tekhnicheskii institut pri Tomskom
gosudarstvennom universitete imeni V.V. Kuybysheva.
(Electrons—Spectra) (Crystal lattices)

KARAVAYEV, G.F.; KUDRYAVTSEVA, N.V.; CHALDISHEV, V.A.

Structure of the energy spectrum of electrons in the Th_3P_4 type crystals. Fiz.tver.tela 4 no.12:3471-3481 D '62. (MIRA 15:12)

1. Tomskiy gosudarstvennyy universitet im. V.V.Kuybysheva.
(Groups, Theory of) (Electrons—Spectra)
(Crystal lattices)

CHALDYSHEV, V.A.; KUDRYAVTSEVA, N.V.; KARAVAYEV, G.F.

Electron energy spectrum in crystals. Part 5: Loaded corepresentations.
Izv.vys.ucheb.zhv.;fiz.no.2:46-52 '63.

(MIRA 16:5)

1. Sibirskiy fiziko-tekhnicheskoy institut pri Tomskom gosudarstvennom
universitete imeni V.V.Kudryasheva.

(Crystallography, Mathematical)

(Electrons—Spectra)

CHALDYSHEV, V.A.; KARAVAYEV, G.F.

Valence band structure of chalcopyrite type compounds. Izv. vys.
ucheb. zav.; fiz. no.5:103-112 63. (MIRA 16:12)

1. Sibirskiy fiziko-tekhnicheskoy institut pri Tomskom gosudarst-
vennom universitete imeni Kuybysheva.

CHALDYSHEV, V.A.; KARAVAYEV, G.F.

Structure of the energy spectrum of chalcopyrite type crystals.
Izv. vys. ucheb. zav.; fiz. no. 2:28-30 '64. (MIRA 17:6)

1. Sibirskiy fiziko-tekhnicheskoy institut pri Tomskom
gosudarstvennom universitete imeni V.V.Kuybysheva.

KUDRYAVTSEVA, N.V.; CHALDYSHEV, V.A.

Studying of the electron energy spectrum in crystals. Part 6. Izv.
vys. ucheb. zav.; fiz. 8 no.2:57-64 '65. (MIRA 18:7)

1. Sibirskiy fiziko-tekhnicheskii institut imeni Kuznetsova.

KUDRYAVTSEVA, N.V.; CHALDYSHEV, V.A.

Studying the energy spectrum of electrons in crystals. Part 7. Izv.
vys. ucheb. zav.; fiz. 8 no.3:105-111 '65. (MIRA 18:9)

1. Sibirskiy fiziko-tekhnicheskoy institut imeni V.D.Kuznetsova.

L 09237-67 EWT(1) IJP(c) GG/AT
ACC NR: A27002785

SOURCE CODE: UR/0139/66/000/004/0108/0109

AUTHOR: Rudryavtseva, N. V.; Chaldyshev, V. A. 31

ORG: Siberian Physicotechnical Institut im. V. D. Luznetsov (Sibirskiy fiziko-
tekhnicheskii Institut)

TITLE: Investigation of the ²¹energy spectra of ²¹electrons in a crystal. IX.
Characteristics of loaded corepresentations of point groups D_{2h}, D_{4h}, D_{6h}

SOURCE: IVUZ. Fizika, no. 4, 1966, 108-109

TOPIC TAGS: electron spectrum, crystallography

ABSTRACT: Characteristics are given for irreducible nonequivalent loaded core-
presentations of all possible types of coequivalent loads for the groups D_{2h}, D_{4h},
and D_{6h}, which can have seven types of equivalent loads of the second order. Results
are given in an extensive table, which is explained in detail. Orig. art. has:
1 table. [JPRS: 39,040]

SUB CODE: 20 / SUBM DATE: 23Mar65 / ORIG REF: 007

Card 1/1 ml

CHALECKI, Janusz, mgr ins.

Influence of the position of the gnallactic point of the telescope of the automatic leveling instrument on the leveling error of the aim axis. Przegl geod 35 no.4:159-160 Ap '63.

CHALECKI, Janusz, mgr inż.

Prism compensator of the sight line inclination in a level.
Przeł geod 35 [1.9.36] no. 3:104-106 M '64.

COUNTRY : Poland
CATEGORY : Forestry. Forest Management. K
ABS. JOUR. : RZhBiol., No. 14 1959, No. 63214
AUTHOR : Chalecki, Leon
INFO. : --
TITLE : The Concept of Closure Is Not Worthless
ORIG. PUB. : Las polski, 1957, 31, No. 17, 10-12
ABSTRACT : Up to the present time in Poland, a four-point scale is employed to determine crown closure, according to which the latter may be "total", "intermediate", "discontinuous" and "sparse stand ". The author recommends changing to the universally-adopted ten-point scale, since this better fulfills the requirements of rational forest management.

CARD: 1/1

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CHALECKI, L.

Forest roads as dividing lines. p. 6.

LAS POLSKI. (Ministerstwo Lasnictwa oraz Stowarzyszenie Naukowo-Techniczne Inzynierow i Technikow Lasnictwa i Drzewnictwa) Warszawa, Poland. Vol. 32, no. 12, June 1958.

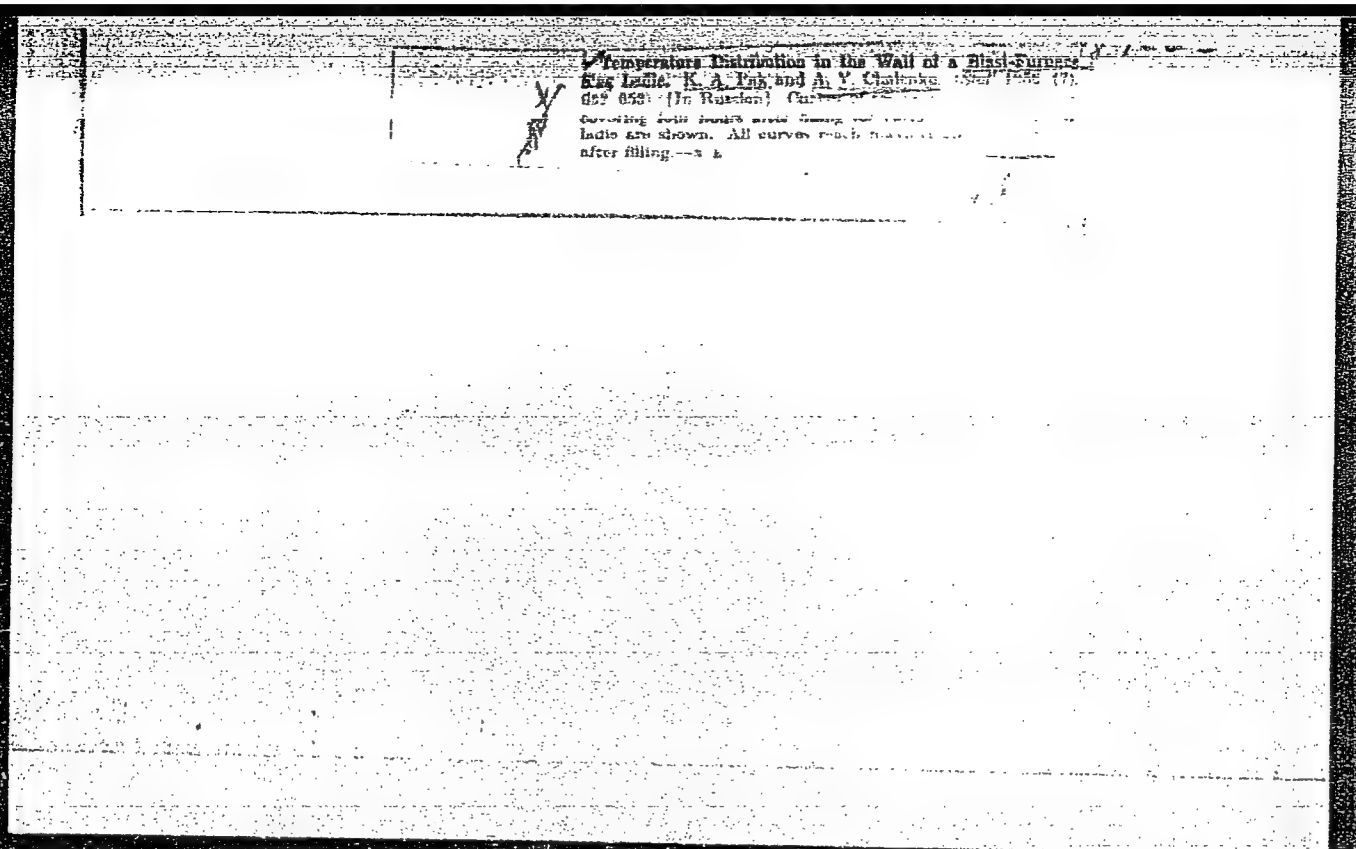
Monthly List of East European Accession (EEAI) LC, Vol. 9, no. 1, Jan. 1960.
Uncl.

CHALECKI, L.

Alternation of stand to be cropped. p. 39

SYLWAN (Wydział Nauk leśniczych i Leśnych Polskiej Akademii Nauk i Polskie
Towarzystwo Leśne) Warszawa, Poland. Vol. 103, no. 3, Mar 1959

Monthly List of East European Accessions (EEAI) IC, Vol. 8, no. 9, September 1959.
Uncl.



CHALENKO, D.K.										16									
CA																			
Wine from Chalenko, D.K. Chalenko. Vinodelie i Vinogradarstvo S.S.S.R. 8, No. 2, 22-3(1948).--Table, strong, and sweet wines prepd. from berries of this vine are discussed and results tabulated for chem. analyses on percentage of alc., volatile and titratable acid, and invert sugar.										Harold Outfield									
ASST. ILL. METALLURGICAL LITERATURE CLASSIFICATION																			
SODOM STUDDING										EAST-SPR. BUREAU									
SODOM STUDDING										EAST-SPR. BUREAU									

CHALENKO, D. K.

"Raw Material for Cider Production in Gelendzhik District," Vin SSSR 12, No 8, 1952.

CHALENKA, D.K.

USSR/Microbiology - Industrial Microbiology.

F-3

Abs Jour : Ref Zhur - Biol., No 5, 1958, 19453

Author : Sosina, Chalenka, Lysukha, Krasouskaya

Inst : -

Title : Native Cryophilic [?] Yeast Strains for Fruit-Berry
Viniculture in Byelorussia.

Orig Pub : Vestsi AN BSSR. Ser. biyal. n. AN BSSR. Ser. Biol. n.,
1956, No 2, 101-113

Abstract : In studying 142 yeast strains isolated from fruit-berry
raw material in Byelorussia, 2 were selected-- Saccharo-
myces ellipsoides Slutskaya-2 and Minskaya-120, ferment-
ing must at 12-14° (temperature lower than optimum for
developing wild yeast and bacteria), fully fermenting
sugars, and yielding wines of good quality.

Card 1/1

CHALENKO, D.K.

USSR / Chemical Technology. Chemical Products and Their
Application. Fermentation Industry.

Abs Jour

: Ref Zhur - Khimiya, No 3, 1957, No 10243

Author
Inst
Title

: Begumova, R.D. and Zakharina, O.S., and Chalenko, D.K.
: Not given
: The Removal of Iron from Wine with the Aid of Ion-Exchange
Resins.

Orig Pub

: Vinodeliye i vinogradarstvo SSSR, 1956, No 4, 14-16

Abstract

: Experiments have been carried out in which fruit and berry
wines (fortified cider, fortified white wine) and grape wi-
nes were treated with KU-1 and SBS cation-exchange resins
and ED-10 anion-exchange resins for the removal of the dis-
solved iron. It has been established that the iron is pre-
sent in the above-indicated wines (with the exception of
Sil'vaner wine) in the form of complex compounds, and hence
is not removed by cation-exchange resins; however, nearly

I-29

CHALENKO, D.K.

USSR / Microbiology - Industrial Microbiology.

F

Abs Jour: Ref Zhur-Biol., No 9, 1958, 38410.

Author : Sosina, S. M., Chalenko, D. K., Lysukho, E. N.,
Krasovskaya, A. A.

Inst : Not given.

Title : Local Cold-Resistant Yeast Races for Fruit-
Berry Viniculture.

Orig Pub: Tr. Belorussk. n.-i. in-t pishch. prom-sti,
1957, No 1, 54-66.

Abstract: No abstract.

Card 1/1

BEGUNOVA, Roza Davidovna; ZAKHARINA, Ol'ga Solomonovna; ZARUBIN, Vasilii Andreyevich; PAVLOV-GRISHIN, Sergey Ivanovich; CHALENKO, Dmitriy Kalinovich; FEDOROVICH, Aleksandr Georgiyevich; GERASIMOV, N.A., retsentsent; BUYEVAEROVA, Ye.M., spetsred.; KOVALEVSKAYA, A.I., red.; GOTLIB, E.M., tekhn.red.

[Technology and chemical control of grape, fruit, and berry wines]
Tekhnologiya i tekhnokhimicheskiy kontrol' vinogradnykh i plodove-
lagodnykh vin. Moskva, Pishchepromizdat, 1959. 460 p.

(MIRA 13:3)

(Wine and wine making)

CHALENKO, Dmitriy Kolinovich; SERBINOVA, N.I., kand.tekhn.nauk, retsenzent;
KOVALEVSKAYA, A.I., red.; KISINA, Ye.I., tekhn.red.

[Microbiological control of wine making] Mikrobiologicheskii
kontrol' vinodeliia. Moskva, Pishchepromizdat, 1960. 142 p.
(MIRA 14:4)

(Wine and wine making--Microbiology)

CHALENKO, D.K.; KORSAKOVA, T.F.

Agents causing biological reduction of acidity in apple juices
and cider. Mikrobiologiya 29 no. 4:587-594 J1-Ag '60.
(MIRA 13:10)

1. TSentral'naya nauchno-issledovatel'skaya laboratoriya
vinodel'cheskoy promyshlennosti, Moskva.
(APPLE JUICE) (YEAST)
(WINE AND WINE MAKING—MICROBIOLOGY)

CHALENKO, D.K.; KORSKOVA, T.F.

Elimination of the decrease in biological acidity in apple juice
caused by Schizosaccharomyces acidodevorax. Mikrobiologiya 30 no.1:
152-157 Ja-F '61. (MIRA 145)

1. Tsentral'naya nauchno-issledovatel'skaya laboratoriya vinodel'-
cheskoy promyshlennosti, Moskva.

(APPLE JUICE—MICROBIOLOGY)
(SCHIZOSACCHAROMYCES ACIDODEVORAX—PHYSIOLOGICAL EFFECT)

Stapled and
being rerun.

CHALENKO, D. K.

USSR / Chemical Technology. Chemical Products and Their Application. I-29
Application. Fermentation Industry.

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, No 10243

Author : Begunova, R.D. and Zakharina, O.S., and Chalenko, D.K.

Inst : Not given

Title : The Removal of Iron from Wine with the Aid of Ion-Exchange Resins.

Orig Pub : Vinodeliye i vinogradarstvo SSSR, 1956, No 4, 14-16

Abstract : Experiments have been carried out in which fruit and berry wines (fortified cider, fortified white wine) and grape wines were treated with KU-1 and SBS cation-exchange resins and ED-10 anion-exchange resins for the removal of the dissolved iron. It has been established that the iron is present in the above-indicated wines (with the exception of Sil'vaner wine) in the form of complex compounds, and hence is not removed by cation-exchange resins; however, nearly

Card : 1/2

USSR / Chemical Technology. Chemical Products and Their
Application. Fermentation Industry.

I-29

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, No 10243

Abstract : complete removal is achieved with a type EDS-10 anion-ex-
change resin which has been treated with citric acid anion.
After ion exchange the treated wines compare well with the
control specimens and in a number of cases are of superior
quality. A certain reduction in acidity is observed after
ion exchange. Better results were obtained when the wines
were treated in batches with doses of 6.5-7 gms per liter
of EDE-10 anion-exchange resins; contact times of 3-4 hours
were used with constant shaking.

Card : 2/2

ANBINDER, Ya.Ye. [Anbinder, I.A.IE.]; SHPAKOVSKIY, N.Ye. [Shpakovs'kyl, N.E.];
DARBINYAN, S.A.; KOMAROV, V.V.; KOMAROVA, T.V.; KCZLOV, Yu.A.; KONOKOTIN,
L.P.; ZEREKIDZE, V.M.; SHULYATITSKIY, S.M. [Shyliatyts'kyl, S.M.];
KHODURSKIY, Ye.A. [Khodurs'kyl, IE.A.]; OBUSHINSKIY, Ye.I. [Obushyns'kyl,
IE.I.]; GVOZDIK, A.A. [Hvozdyk, A.A.]; NIKITINA, M.A.; LUPASHKO, N.F.;
BESKROVNIY, M.N.; TSIMBLER, M.Ye. [TSymbler, M.IE.]; ILYN, A.N.; TOTADZE,
P.M.; ZHIGURS, Kh.Yu.; ZAKREVSKIY, Ye.S. [Zakrevs'kyl, IE.S.];
FEDOROVICH, A.G. [Fedorovych, A.H.]; CHALENKO, D.K.; KHOMUTOV, D.A.;
SKURIKHIN, I.M.; NILOV, V.I.; YEFIMOV, B.N. [IEfimov, B.N.]; KAZANOVSKIY,
V.S. [Kazanovs'kyl, V.S.]; ZOTIKOV, L.S.; KOCHURENKO, M.A.

Soviet certificates of invention. Khar. prom. no.2:57-59 Ap-Je '65.
(MIRA 18:5)

CHALENKO, G.I.

Combined local anesthesia in surgery of the wrist. Khirurgiia, Moskva
no.8:49-52 Aug 1953. (CML 25:4)

1. Candidate Medical Sciences. 2. Of the Surgery Department (Head —
N. N. Petrov), Institute for the Advanced Training of Physicians imeni
S. M. Kirov.

METLITSKIY, L.V.; OZERETSKOVSKAYA, O.L.; CHALENKO, G.I.; STROKOVA, G.A.

Fungitoxic action of phenol compounds formed in potato tubers as a result of injury. Dokl. AN SSSR 160 no.4:964-967 F '65. (MIRA 18:2)

1. Institut biokhimii im. A.N. Bakha AN SSSR. Submitted June 30, 1964.

CHALENKO, G.N.

AID P - 2060

Subject : USSR/Electricity

Card 1/2 Pub. 26 - 2/29

Authors : Kaganovich, S. A., Kand. of Tech. Sci., Chalenko, G. N.,
Eng., Popov, A. G., Eng., and Kirillov, S. I., Eng.

Title : Increasing economy in milling Moscow basin coals

Periodical: Elek. sta.²⁶, 4, 6-11, Ap 1955

Abstract : The article describes the operation of ball mills for
culm at one of the Moscow Regional Electric Power Plants
and recommends some improvements to save pulverized coal
in the milling process. A description of the Soviet-made
ball mill with pertinent data is included. The separator
was designed by the VTI (All-Union Technical Institute),
and has a well-organized venting of returned pulverized
culm. Its efficiency and capacity are presented. Various
tests of venting returned pulverized coal with different
loads in the ball mill are described, and the consumption
of power needed and detailed data on the returned pulverized

Elek. sta., 4, 6-11, Ap 1955

AID P - 2060

Card 2/2 Pub. 26 - 2/29

coal are given. The average performance and the output of the ball mill are given in a table. The article mentions that altered and improved separators had been installed at the power plant by July 1954. Ten diagrams.

Institution: None

Submitted : No date

KRYZHANOVSKIY, V.A., inzh.; CHALENKO, G.N., inzh.; DEYEV, L.V., inzh.;
KOVALEV, A.P., doktor tekhn. nauk, prof.; KHZMALYAN, D.M.,
kand. tekhn. nauk

Increase of slagless power of boilers operating on coal of the
Moscow region. Teploenergetika 11 no.4:10-15 Ap '64.

(MIRA 17:6)

1. Tulaenergo i Moskovskiy energeticheskiy institut.

CHALENKO, I.; BRESLAVETS, Ye.; KUNASHEV, M.

The wide front of mechanization. Grazhd. av. 21 no.6:25 Je '64.
(MIRA 17:8)

1. Nachal'nik otдела mekhanizatsii Krasnodarskogo krayevogo upravleniya proizvodstva i zagotovok sel'skokhozyaystvennykh produktov (for Chalenko). 2. Starshiy inzh. ob'yedineniya "Sel'khoztekhnika", Krasnodar (for Breslavets). 3. Starshiy inzh. Krasnodarskogo podrazdeleniya aviatsii spetsial'nogo primeneniya (for Kunashev).

KOROSTELEV, V.M., inzh.; CHALENKO, I.D., inzh.; KOZLOV, G.M., inzh.

Micella preconcentrator at the Georgiyevsk Oil Extraction Plant.
Masl.-zhir.prom. 25 no.12:38-39 '59. (MIRA 13:4)

1. Georgiyevskiy maslosavod.
(Georgiyevsk--Oil industries--Equipment and supplies)

CHALENKO, N.F.; GLAZMAN, M.Yu.

New developments in the clothing industry enterprises of the Kiev
Economic Council. Ish.prom. no.3:57-59 Je - Ag '62. (MIRA 16:2)

1. Otrasevoye konstruktorskoye buyro tresta shveyroy promyshlennosti
Kiyevskogo soveta narodnogo khozyaystva.
(Kiev Economic Region--Clothing industry)

KORNEYEV, B.N., inzh.; UL'YAKHIN, P.M., inzh.; CHALENKO, N.Ye., inzh.;
YEFREMENKO, F.V., inzh.

Wide work mining. Sbor.DonUGI no.20:77-89 '61. (MIRA 15:6)
(Donets Basin--Coal mines and mining)

KORNEYEV, B.N., inzh.; UL'YAKHIN, P.M., inzh.; YEFREMENKO, F.V., inzh.;
CHALENKO, N.Ya., inzh.

Economic efficiency of wide work mining. Sbor.DonUGI no.20:
90-108 '61. (MIRA 15:6)
(Donets Basin--Coal mines and mining)

KORNEYEV, B.N., inzh.; UL'YAKHIN, P.M., inzh.; CHALENKO, N.Ye., inzh.;
YEFREMENKO, F.V., inzh.

Technological layouts and efficiency of scraper rock filling of
the mined-out area of longwalls in flat seams. Sbor. DonUGI
no.29:17-31 '63. (MIRA 16:10)

(Donets Basin—Mine filling)

CHALENKO, N. Ye., inzn.

Technical and economic efficiency of mining coal in strips to
the rise and down the pitch of the seam. Sber. DonUGI no. 33:
3-17 '64.

(MIRA 17:11)

~~CHALENKO, O. K.~~
VAS'KOVSKIY, A. P., PASECHNIK, P. P., FADRYGA, S. V. and CHALENKO, O. K.

"Agriculture of the Magadan Oblast" (book) 1957

Tells of the Experiences of agricultural workers of the Magadan oblast', which is the more interesting because of the utilization of new areas in the north. Inspite of the many of authors the book is a complete and finished work.

CHALENKO, P.I.

36268

16.4100

S/021/62/000/004/001/012
D299/D302

AUTHORS: Polozhiy, H.M., and Chalenko, P.Y.

TITLE: Method of bands for solving integral equations

PERIODICAL: Akademiya nauk UkrRSR. Dopovidi, no. 4, 1962, 427-430

TEXT: The proposed method incorporates the basic principles of three well-known methods: The method of finite differences, the method of iteration, and the method of approximation of kernels. Fredholm's equation of the second kind is considered

$$\varphi(x) = f(x) + \lambda \int_0^1 K(x, s) \varphi(s) ds \quad (1)$$

where $f(x)$ and $K(x, s)$ are real functions, λ is a number which is not an eigenvalue of the kernel $K(x, s)$, and $\varphi(x)$ is the sought-for function. The square $0 \leq x, s \leq 1$ is divided into m bands by means of straight lines, parallel to the X-axis: $s = s_k$ ($k = 1, 2, \dots, m$; $s_0 = 0$; $s_m = 1$). In each of these bands, the kernel $K(x, s)$ is

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Method of bands for solving ...

S/021/062/000/004/001/012
D299/D302

approximated by functions of type

$$C_k(x, s) = C_k(x) + P_k(x)Q_k(s), \quad (k = 1, 2, \dots, m) \quad (2)$$

where $C_k(x)$, $P_k(x)$ and $Q_k(s)$ are certain functions. Eq. (1) is rewritten in a different form, and a simple iteration process performed. Thereupon one obtains

$$\varphi(x) = \lambda \sum_{k=1}^m E_k X_k(x) + \lambda \sum_{k=1}^m E_k^* X_k^*(x) + \Psi(x) \quad (12)$$

where E_k are integral expressions, (as well as X_k). By integrating Eq. (12) one obtains a system of $2m$ linear algebraic equations. Eq. (12) yields

$$\varphi(x) = F(x) \lambda \int_0^1 H(x, s; \lambda) F(s) ds, \quad (14)$$

where $H(x, s; \lambda)$ is the resolvent of the kernel $D(x, s)$, expressed by a convergent Neumann series, and

Card 2/4

Method of bands for solving ...

S/02 52/000/004/001/012
D290/130

$$F(x) = f(x) + \lambda \sum_{k=1}^m E_k C_k(x) + \lambda \sum_{k=1}^m E_k^* P_k(x). \quad (15)$$

A computation scheme is constructed which corresponds to formula (14), and permits one to obtain the approximate value of $\varphi(x)$, as a result of a finite number of operations with known quantities. The function

$$\tilde{\varphi}_n(x) = \lambda \sum_{k=1}^m [E_k^{(n)} X_k^{(n)}(x) + E_k^{*(n)} X_k^{*(n)}(x)] + Y_n(x) \quad (n = 1, 2, \dots) \quad (16)$$

is introduced, where $E_k^{(n)}$, $E_k^{*(n)}$ are constants (determined from a system of equations); $\tilde{\varphi}_n(x)$ is considered as the approximate solution of Eq. (1), and the error, yielded by the method, is estimated. One obtains for the error:

$$|\varphi(x) - \tilde{\varphi}_n(x)| \leq M q^n, \quad (23)$$

Card 3/4

Methods of bands for solving ...

S/021/62/000/004/001/012
D299/D302

where $q = \lambda / D < 1$, and M is a constant which does not depend on n . An example is considered, which shows the adequate convergence of the proposed method. There are 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc, (including 1 translation). The reference to the English-language publication reads as follows: P.A. Samuelson, Jour. of Math. and Physics, 31, 276, 1953.

ASSOCIATION: Kyivskyy derzhavnyy universytet (Kyiv State University)

PRESENTED: by Academician Y.Z. Shtokalo, AS UkrRSR

SUBMITTED: October 5, 1961

Card 4/4

CHALENKO, P. Y.

L 9022-65 EWT(a) Pg-1 LJP(c)/RAEM(z)/ESD(dp)/APWL

ACCESSION NR: AR4043047

8/0044/64/000/006/B114/B114

SOURCE: Ref. zh. Matematika, Abs. 68593

AUTHOR: Chalenko, P. Y. B

TITLE: Error estimation of the band method of approximate solution of integral equations 16

CITED SOURCE: Vistnyk Kyryivs'k. un-tu, no. 5, 1962, Ser. matem. ta mekhan., vy'p. 2, 70-78

TOPIC TAGS: error estimate, band method, integral equation, approximate solution, Fredholm integral equation, band method error estimate

TRANSLATION: The approximative solution of the Fredholm integral equation of the second type by the band method (RZhMat. 1963, 1818) is examined. For the error estimate

$$| \varphi(x) - \varphi_n(x) | < M \varphi^n (n=1,2,\dots).$$

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L 9022-65

ACCESSION NR: AR4043047

where $\varphi(x)$ is the exact solution of the equation $\varphi_n(x)$ its n-approximation, q - a known positive number which may be small, provided the number of bands is sufficiently large, M an earlier unknown constant, - and estimate in the following form is developed

$$|\varphi(x) - \varphi_n(x)| < M_n q^n (n=1, 2, \dots).$$

where M_n are constants limited in the aggregate

$$M_n = \gamma \left(\frac{1}{1 + |\lambda| |C| |E_n| + |\lambda| |P| |E_n^*|} \right) + \frac{|\lambda| |A_n (\delta_1 |E_n| + \delta_2 |E_n^*|) + |\lambda| (\delta_1 A_1 + \delta_2 A_2)}{d_n - A_n q^n} \quad (1)$$

It is essential that all values entered on the right side of the equality (1) be priorly known, except for d_n , H_n and E_n^* . However, these values will be determined during the calculation process. Thus, for each step in the calculation the error of the band method is very effectively determined. G. Polozhiy

SUB CODE: TRA

ENCL: 00

Card 2/2

S/021/63/000/003/004/022
D405/D301

AUTHOR:

Chalenko, P. Y.

TITLE:

On solving integral equations with a degenerate kernel

PERIODICAL: Akademiya nauk UkrRSR. Dopovid. no, 3, 1963, 306-309

TEXT: A method of solution of integral equations with a degenerate kernel is proposed which involves much less computational work than the conventional methods. The integral equation

$$\varphi(x) = f(x) + \lambda \int_a^b \sum_{i=1}^n a_i(x) b_i(s) \varphi(s) ds \quad (1)$$

is considered; here $f(x)$, $a_i(x)$ and $b_i(s)$ are given functions of their arguments in the interval $[a, b]$; $\varphi(x)$ is the sought-for

Card 1/3

S/021/63/000/003/004/022
D405/D301

On solving integral ...

function, and the number λ is not an eigenvalue of the kernel. As a rule the solution of Eq. (1) reduces to solving a system of linear algebraic equations involving $\frac{n}{2}(n^2 + 3n - 1) + n^2$ separate operations of multiplication and division. The method proposed by the author amounts to decomposing the one integral equation into several integral equations. At each step one of the unknown parameters is eliminated; after n steps one obtains the solution of Eq. (1) in the form

$$\varphi(x) = f^{(n-1)}(x) + \frac{\lambda(f^{(n-1)}, b_1)}{1 - \lambda(a_1^{(n-1)}, b_1)} a_1^{(n-1)}(x) \quad (10)$$

where the functions $f^{(j+1)}$ and $a_1^{(j+1)}$ are calculated by formulas given. In general, this method requires the evaluation of $\frac{n(n+3)}{2}$ integrals and $\frac{n(3n+5)}{2}$ operations of addition and multiplication.

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On solving integral ...

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D405/D301

Solution (10) was obtained under a certain condition with regard to λ ; if this condition is not satisfied, then the method is somewhat modified; but even in this case it still involves less computational work than conventional methods.

ASSOCIATION: Kyivskyy derzhavnyy universytet (Kyiv State University)

PRESENTED: by Academician Yu. A. Mytropol'sky of the AS UkrRSR

SUBMITTED: April 18, 1962

Card 3/3

L 25124-65 EWT(d)/Pg-4 IJP(c)

ACCESSION NR: AT5002842

S/3123/64/000/001/0124/0144

15
B+1

AUTHOR: Polozhiy, G.N.; Chalenko, P.I.

TITLE: The pole method of solving integral equations 16

SOURCE: AN UkrSSR. Institut matematiki. Voprosy matematicheskoy fiziki i teorii funktsiy, no. 1, 1964, 124-144

TOPIC TAGS: integral equation, Fredholm second order equation, pole method, iteration method, computer program

ABSTRACT: In recent years, numerous papers and books have discussed numerical methods for the solution of Fredholm second order integral equations (see, e.g., E.G. Kimme et al., Linear Integral Equations, Math. for Digital Computers, vol. 2, 1959; A.I. Nesterenko, V.G. Korepov, Visnik KDU, ser. astr., matem. ta mekh., vol. 2, no. 2, 1959). An experiment, carried out by the authors on the IBM 704 at the Computer Center of Michigan University using methods published earlier (G.N. Polozhiy, DAN SSSR, vol. 118, no. 5, 1958; Izv. AN SSSR, vol. 23, no. 2, 1959), showed that iteration methods are particularly suitable for the solution of the above-mentioned problem using high-speed com-

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1/2

L 25124-65

ACCESSION NR: AT5002842

puters. Preliminary transformations help to eliminate the divergence of the iteration process for large values of the integral equation parameter. The pole method proposed for the solution of integral equations consists of a special combination of three known methods: 1) simple iteration, 2) finite differences, and 3) kernel approximation. The two sections of the paper cover averaging over the area and over the poles, respectively. Both cases are illustrated by the calculation of

$$\varphi(x) = f(x) + \lambda \int_0^1 (xe^{xs} + 100) \varphi(s) ds \quad (1)$$

Orig. art. has: 115 formulas.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MA, DP

NO REF SOV: 013

OTHER: 006

Card 2/2

1 33330-66 FWT(d) IJP(c)
ACC NR: AT6010213

SOURCE CODE: UR/3187/65/000/001/0079/0089

AUTHOR: Chalenko, P.I. (Candidate of physico-mathematical sciences)

ORG: None

TITLE: On the errors of the strip method with the utilization of numerical integration formulas

SOURCE: Kiyev. Universitet. Kafedra vychislitel'noy matematiki. Vychislitel'naya matematika, no. 1, 1965, 79-89

TOPIC TAGS: mathematic method, numeric method, integral equation, approximation error, error minimization, *NUMERIC INTEGRATION*

ABSTRACT: This paper deals with the estimation of errors of the strip method of solving integral equations, related to the use of numerical integration formulas. The strip method has been described before, e.g. by G.N. Polozhiy and P.I. Chalenko (Resheniye integral'nykh uravneniy metodom polos. Voprosy matematicheskoy fiziki i teorii funktsiy, Sbornik Instituta matematiki AN UkSSR, 1964). The strip method solves the integral equation by splitting it into several ones for which the basic iteration process is then converging faster. The author begins by a review of the various errors associated with the method of simple iteration and the use of numerical integration formulas, applied to the integral equation (1)

$$\psi(x) = f(x) + \lambda \int D(x, s) \psi(s) ds.$$

(1)

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L 33330-66

ACC NR: AT6010213

Bounds for the errors of numerical quadrature, the iteration process, the irreducible errors and the round-off errors are determined, using the Cauchy-Bunyakovskiy inequality. The author notes the predominant contribution of the numerical quadrature errors. Since an attempt to decrease these errors by increasing the number of subdivisions within the interval $[a, b]$ leads to an undesirable increase in the order of the associated systems of algebraic equations used in the computation process, it is recommended to use the most precise numerical integration formulas. Errors of the strip method are then discussed in connection with the integral equation

$$\varphi(x) = f(x) + \lambda \int_a^b K(x, s) \varphi(s) ds, \quad (2)$$

where $f(x)$ is continuous on $[a, b]$, and $K(x, s)$ is a kernel fulfilling all conditions of the Fredholm theory for the integral equations of the second kind. An estimate of errors at points x_i for the approximate solution of (2) obtained by the strip method, is given. In commenting on the merits of the strip method, the author notes the need for λ to be sufficiently different from the eigenvalues of the kernel $K(x, s)$ to assure good precision. Orig. art. has 42 formulas.

SUB CODE: 12/

SUBM DATE: 00/

ORIG REF: 004

Card 2/2 ULR

TOVBIN, M.V.; CHALENKO, V.G.

Catalytical properties of iron and cobalt alloys in the reaction of ammonia synthesis. Ukr.khim.zhur. 29 no.3:278-284 '63. (MIR^A 16:4)

1. Kiyevskiy gosudarstvennyy universitet imeni T.G.Shevchenko.
(Iron-cobalt alloys) (Ammonia) (Catalysis)

L 20755-65 HPF(c)/EWP(j)/EWP(m)/EWP(b)/EWP(t) Pc-4/Pr-4 IJP(c) RM/JD
ACCESSION NR: AP4000472 S/0073/64/030/011/1128/1135 ~

AUTHOR: Chalenko, V. G.; Tovbin, M. V. B

TITLE: The catalytic activity of iron and manganese alloys in the ammonia synthesis reaction 27 27

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 30, no. 11, 1964, 1128-1135

TOPIC TAGS: ammonia synthesis, iron manganese catalyst, catalytic activity

ABSTRACT: The catalytic activity of Fe-Mn alloys (0-100% Mn) in the ammonia synthesis reaction was investigated. The specific catalytic activity in the ammonia synthesis reaction at all temperatures from 300-450C was maximum with alloys containing 30-40% Mn (these contain about the same amount of α - and γ -iron); 100% Mn was inactive; the low activity of 100% Fe and of all other alloy compositions dropped rapidly in 2-3 hours. The change in the catalytic activity of the alloys with reaction time was explained by changes in their phase composition, as confirmed by x-ray analysis. These changes in the crystal structure were believed to determine the reaction of the alloy with components of the react-

Card 1/2

L 20755-65

ACCESSION NR: AP4000472

ion mixture, probably controlling the adsorption of the reaction gases during the catalytic reaction. Orig. art. has: 2 tables and 7 figures

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet im. T. G. Skvchenko
(Kiev State University)

SUBMITTED: 11Jul63

ENCL: 00

SUB CODE: GC, MM

NO REF SOV: 010

OTHER: 001

Card2/2

USSR / Human and Animal Physiology (Normal and Pathological).
Neuromuscular Physiology.

T

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 60679

Author : Chalonkov, S. N.

Inst : Smolensk Medical Institute

Title : The Effect of the Central Nervous System on the Pessimum
of the Neuromuscular Apparatus

Orig Pub : Tr. Smolenskogo med. in-ta, 1957, 6, 76-82

Abstract : In the removal of several parts of C.N.S. in the frog,
the pessimum contractions were noted in the apparatus of
the sciatic nervegastrocnemius muscle, in strength as
well as in the frequency of stimulations. The pessimum
was particularly distinct after the removal of the mid-
brain and the oblongata. The effect of strychnine
1:50,000 on the spinal cord in 15 out of 30 tests made
the development of the pessimum difficult, strengthened

Card 1/2

USSR / Human and Animal Physiology (Normal and Pathological).
Neuromuscular Physiology.

T

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 60679

it in six cases, and there was no change in nine. After the cutting of the nerve below the lumbar plexus, the produced effect usually disappeared. Cocainization of the spinal cord in the region of VII to IX usually strengthened the pessimum. -- F. I. Mamladze

Card 2/2

114

CHALEVA, Emilia, inzh.

Universal machine for flange bending. Rationalizatsia 15.
no. 5817 '64

1. Metallurgical Combine, Kremikovtzi.

L 28376-66 EEC(k)-2/EWA(h)/EWP(k)/EWT(l)/EWT(m)/FBD/T/EWP(e) IJP(c) WH/WG
 ACC NR: AF6013104 SOURCE CODE: UR/0368/66/004/004/0348/0350

AUTHOR: Stepanov, B. I.; Rubanov, A. S.; Chaley, A. V.

ORG: none

TITLE: Thermal regime of a glass laser 25

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 4, 1966, 348-350

TOPIC TAGS: neodymium glass, solid state laser, heat conduction, temperature distribution, laser r and d

ABSTRACT: The authors determine the temperature field in a neodymium-glass laser by solving the equations of heat conduction in a cylindrical rod under conditions of repeated generation pulse. The boundary conditions are introduced by determining the Biot number. Separate equations are written for the heating and the cooling cycle, first for stationary conditions and an infinitely long rod, and then for periodic application of heat, assuming the heating (lasing) time to be much shorter than the cooling time. Tables are presented for several rod diameters and several cooling times. Orig. art. has: 14 formulas and 2 tables. [02]

SUB CODE: 20/ SUBM DATE: 29Jun65/ ORIG REF: 001/ ATD PRESS: 4262

UDC: 621.375.9

L 27729-66 FBD/EWT(1)/EWT(m)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c) WG
ACC NR: AP6015589 SOURCE CODE: UR/0368/66/004/005/0389/0394

AUTHOR: Stepanov, B. I.; Rubanov, A. S.; Kabashnikov, V. P.; Chaley, A. V.

ORG: none

TITLE: Temperature conditions of a ruby laser

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 5, 1966, 389-394

TOPIC TAGS: ruby laser, temperature, thermal analysis

ABSTRACT: Formulas are derived for the temperature field of a cylindrical ruby laser cooled by air, water, liquid nitrogen and liquid hydrogen assuming uniform heat release with respect to volume. Both monopulse conditions and free emission with a given prf are considered. The results of the formulas are tabulated and compared with the temperature conditions of a continuously operated ruby rod of various diameters. It is found that formulas derived by solving the thermal conductivity equation with boundary conditions of the first kind may be used for calculating the thermal conditions of a ruby laser at nitrogen temperatures when the ruby rod has a radius of 0.7 cm or greater. This type of calculation gives an error of approximately 25%. It is shown that steady-state conditions are reached for all practical purposes in about 0.03 sec for a cylinder with a radius of 0.8 cm. Orig. art. has: 3 tables, 18 formulas. [14]

SUB CODE: 20/ SUBM DATE: 29Jun65/

ORIG REF: 003/ ATD PRESS: 5002

Card 1/1

UDC: 621.375.9

CHALGANOV, A.I., starshiy leytenant med. sluzhby

Surgery on a ship of the first class. Voen.-med. zhur. no.8:82-83
Ag '60. (MIRA 14:7)

(SURGERY, NAVAL)

STREL'NIKOV, B.Ye., kand.med.nauk; SHOSTYA, N.P.; CHALGANOV, A.I.

Operative treatment of megasigmoid (dolichosigmoid). Vest.khir.
85 no.11:42-45 N '60. (MIRA 14:2)
(COLON--SURGERY)

CHALGANOV, A., starshiy leytenant meditsinskoy sluzhby

Health education on a ship. Tyl i snab. Sov. Voor. Sil
21 no.4:29-33 Ap '61. (MIRA 14:7)

(MEDICINE, NAVAL)

POPOV, S.D., kand. med. nauk; CHALGANOV, A.I.

Motion pictures in surgery. Vest. Khir. 91 no.12:64-69 D '63.
(MIRA 17:9)

1. Iz kafedry voyenno-morskoy i gosspital'noy khirurgii (nachal'-
nik- prof. Ye.V. Smirnov) Voyenno-meditinskoy ordena Lenina
akademii imeni Kirova. Adres avtorov: Leningrad, Zagorodnyy
prospekt, 47, klinika voyenno-morskoy i gosspital'noy khirurgii.

CHALGANOV, A.I., kapitan meditsinskoy sluzhby

External biliary fistulae caused by gunshots. Voen.-med. zhur. no. 9:
69-70 '64. (MIRA 18:5)

CHALGANOV, A.I.

External hepatobiliary fistulae in experimental obstruction
of the intrahepatic bile ducts. Eksper. khir. i anest. 9
no.5:34-37 S-O '64. (MIRA 18:11)

1. Klinika voyenno-morskoy i gospi'tal'noy khirurgii (nachal'nik
prof. Ye.V. Smirnov) Voenno-meditsinskoy ordena Lenina akademii
imeni S.M. Kirova, Leningrad.

CHALIDZE, F.N.

Ecological characteristics and the root system structure of some species serving as groundwater indicators in the alluvial delta plain of the Syr Darya. Trudy MOIP 8:53-56 '64.

(MIRA 17:12)

CHALIDZE, I. M.

PA 153718

USSR/Engineering - Circuits, Electric
Power plants, Hydro-
electric Nov 49

"The Problem of Large Hydroelectric Station
Switching Circuits," I. M. Chalidze, N. A. Zlatov,
Yu. A. Var'yash, Engineers, Gidroenergoproekt,
6 pp

"Elektrichestvo" No 11

Recommends use of new type hydroelectric power
station switching circuit employing consolidated
blocks of step-up transformers in conjunction with
cross-connections at generator voltage. Windings
of adjacent transformers are connected to each
153718

USSR/Engineering - Circuits, Electric Nov 49
(Contd)

other, forming a "ring" system. This increases
flexibility of circuit and improves stability
and reliability of power transmission even when
large group of transformers is disconnected.
Includes seven diagrams. Submitted 1 Jul 49.

153718

CHALIDZE, I. M.

AID F - 3045

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 32/33

Author : Chalidze, I. M., Eng.

Title : ~~S. N. Korsak.~~ S. N. Korsak. Electric Water Heaters and Steam Boilers.
125 pp. 1954 (Book Review)

Periodical : Elektrichestvo, 7, 151-152, J1 1955

Abstract : The book represents an exposition of the generalized experience of a group of engineers who worked under the supervision of the author of the book. The reviewer discusses all the eight chapters and points out certain deficiencies, the principal one of which is that the author of the book presented an individual case which he studied.

Institution : Moscow Branch of the State Trust for the Planning of Hydroelectric Power Plants and Developments.

Submitted : No date

CHALIDZE, I.M.

UGORITS, I.I.; GLAZUNOV, A.A.; SYROMYATNIKOV, I.A.; KASHUNIN, I.S.; POSTNIKOV,
N.A.; RADTSIG, V.A.; UL'YANOV, S.A.; GRUDINSKIY, P.G.; VASIL'YEV, A.A.;
KUVSHINSKIY, N.N.; BAPTIDANOV, L.N.; TARASOV, V.I.; KRIKUNCHIK, A.B.;
SHAPIRO, A.B.; BIBIKOV, V.V.; DVOSHIN, L.I.; KLINGOF, I.D.; KARPOV,
M.M.; USPENSKIY, B.S.; CHALIDZE, I.M.; BLOCH, Ya.A.; SHMOTKIN, I.S.

Iesif Iakovlevich Gumin; obituary. Elek.sta.26 no.12:58 D '55.
(Gumin, Iesif Iakovlevich, 1890-1955) (MIRA 9:4)

3862. BRATSK HYDRO-ELECTRIC POWER STATION. Chalice, I.N.,
Uzunskii, P.Z. and Kuryavtsev, K.A. (Elektrichestvo (Electricity, Moscow),
Feb. 1956, 5-8).

Final

1

Chalidze, I. M.

✓ 2866. THE BRATSK HYDROELECTRIC STATION. 621.311.21(57)
I.M. Chalidze, B.Z. Umanski and K.A. Kudryavtsev.
Elektrichestvo, 1956, No. 2, 5-8. In Russian.

The projected Bratsk hydro-electric power station on the river Angara will be the first of the Siberian super-power stations and the one forming the last cascade of the development of the river Angara. It will surpass Kulbyshev in installed power by a factor of 1.5 and in annual output by a factor of 2. Its purpose will be the supply of the industrial regions of Irkutsk, Chermkhov and Krasnoyarsk and of the electrified East-Siberian railways. The main details of the hydraulic and electric part of the project are outlined, with particular stress on the automatic control of the station and its planned substations supplying at 110, 220 and 400 kV. The power for the hydraulic engineering and erection work will be provided by the present Irkutsk power system through a 600 km long transmission line, now under erection. The Bratsk station should be taken into service in 1960.

B.F. Kraus

UMANSKIY, B.Z., inzhener; CHALIDEN, I.M., inzhener.

Gorkiy Hydroelectric Power Station. Elektrichestvo no.4:5-10 Ap '56.
(MLRA 9:7)

1. Moskovskaya otdeleniye Gidrenergooproekta.
(Gorkiy Hydroelectric Power Station)

CHALIDZE, I.M.

AUTHOR: UMANSKIY, B.Z., FEDOTOV, N.I., and CHALIDZE, I.M., PA - 3096
engineers.

TITLE: The Irkutsk Hydroelectric Station. (Irkutskaya gidroelektrostantsiya, Russian)

PERIODICAL: Elektrichestvo, 1957, Nr 5, pp 1 - 6 (U.S.S.R.)
Received: 6 / 1957 Reviewed: 7 / 1957

ABSTRACT: In December 1956 the water power station of Irkutsk, the first of Angara-Cascade, began operation. Thus is the foundation laid for the energy system of Irkutsk-Cherekhovo-Bratsk. After the planned beginning of operation of the power station of Bratsk in 1960 the entire system will be united with that of Krasnoyarsk-Kuznetsk-Novosibirsk to become one of the largest in the world. The general characteristics of the Irkutsk station are described. One feature of the plant is the lack of a concrete spillway. The combined length of the earth dams amounts to 2,5 km. The function of the spillway is carried out by the canals which are placed in the power station building and which lead the water down. They let the high water through. In connection with the raising of the Baikal Sea water level about one meter, a 100 km long new stretch of railroad was built. It is electrified. The main electrical set up is described and the history of its development since 1951 given. Then follow descriptions of schemes for special requirements and the description of the basic equipment. The installation disposes of 8 turbines with

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The Irkutsk Hydroelectric Station.

turbine buckets and a runner diameter of 7,2 m, a useful drop of 26 m, and a practical output of 90 MW and 83,3 U/min speed of rotation. The generators of the power plant are three phase synchronous shield generators with vertical waves and an output of 82,8 MW each. The weight amounts to 1090 t, the length of undulation 8,5 m, the rotative moment 39.000 t.qm. The main transformers are taken from the fifth delivery of the Soviet electroindustry. In the last chapter a survey of the general plan is given.
(3 illustrations)

ASSOCIATION: Moscow Department of the Hydroenergetic Project.
PRESENTED BY:
SUBMITTED: 18.2.1957
AVAILABLE: Library of Congress

Card 2/2

TARASENKO, I.I., inzh.; CHALIK, L.Ye., inzh.

Semiautomatic jig-boring machine with position programming control. Mashinostroenie no.6:9-11 M-D '62. (MIRA 16:2)

1. Tsentral'noye konstruktorskoye byuro Gosplana UkrSSR.
(Drilling and boring machinery)
(Automatic control)

CHALIK, L. Ye.

AUTHOR: Chalik, L.Ye., Engineer.

122-2-8/33

TITLE: The Sub-division of the Overall Gear Ratio in a Two-stage Gear Transmission, Designed to Contact Stress Limitations (Razbivka obshchego peredatochnogo otnosheniya dvukhstupenchatoy zubchatoy peredachi pri raschete po kontaktnym napryazheniyam)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, No.2, pp. 28-30 (USSR)

ABSTRACT: In a two-stage gear transmission with the input and output wheels on the opposite sides of an intermediate cluster gear, the overall gear ratio can be so divided between the two ratios that, if both pairs of gears are designed for a maximum contact stress, a minimum overall length of the gear train is achieved. This minimum is found by analysis and the minimum width, determined by the largest wheel, is also derived. At a certain value of the sub-division, both minima are achieved simultaneously. The relations to be fulfilled for a minimum thickness of the gear train are given. Further relations are derived for minimum frontal areas and minimum volume. Examples are shown to illustrate the use of these relations and a table gives numerical values comparing several sub-divisions of the overall ratio. The sub-division recommended in the Soviet Standard Specification, GOST 2185-55, is compared with that

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The Sub-division of the Overall Gear Ratio in a Two-stage Gear
Transmission, Designed to Contact Stress Limitations

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. required to achieve various minima for two transmissions of
400 or 145 HP and 10 or 25 gear ratio, respectively.
There are 1 figure and 3 Russian references.

AVAILABLE: Library of Congress

Card 2/2

CHALIKOV, A.A., inzh.; MEL'NIKOV, N.G., inzh.

New book on the mechanization of work in communications cable-
laying operations. transp. stroi. 14 no.9:59-60 S '64
(MIRA 18:1)

CHALIKOV, A.A., inzh.

Problems in the assembling and symmetrization of main cables in
an electrification section. Transp. stroi. 15 no.4:8-9 Ap '65.
* (MIRA 18:6)